

WHAT IS CLAIMED IS:

1. A capacitor in a pixel structure, comprising:

a bottom electrode, deposited on a substrate;

a capacitor dielectric layer, covering the bottom electrode and the substrate;

5 a top electrode, deposited on the capacitor dielectric layer and comprising a coupling part and a protruding part, wherein the coupling part corresponds to the bottom electrode for forming a coupling region between the bottom electrode and the coupling part, and the protruding part exceeds the coupling region;

10 a passivation layer, covering the top electrode, wherein an opening formed in the passivation layer exposes the protruding part of the top electrode; and

a pixel electrode, covering the passivation layer and electrically connecting with the top electrode through the opening.

2. The capacitor in the pixel structure of claim 1, wherein the bottom electrode is made of a metal material.

15 3. The capacitor in the pixel structure of claim 1, wherein the top electrode is made of a metal material.

4. The capacitor in the pixel structure of claim 1, wherein the pixel electrode is made of an indium tin oxide material.

20 5. The capacitor in the pixel structure of claim 1, wherein the capacitor dielectric layer is made of a Si_3N_4 material.

6. The capacitor in the pixel structure of claim 1, wherein the passivation layer is made of a Si_3N_4 material.

7. A capacitor structure corresponding to a pixel, comprising:

a bottom electrode, deposited on a substrate;

a dielectric layer, deposited on the bottom electrode;

a top electrode, corresponding to the bottom electrode and deposited on the dielectric layer, wherein the top electrode comprises a coupling part and a protruding part, the coupling part corresponds to the bottom electrode for forming a capacitor region, and the protruding part exceeds the capacitor region;

a passivation layer, covering the top electrode, wherein an opening formed in the passivation layer exposes the protruding part of the top electrode; and

a pixel electrode, covering the passivation layer and electrically connecting with the top electrode through the opening, wherein an incision opening formed in the pixel electrode on the opening and the coupling part exposes the passivation layer.

8. The capacitor structure of claim 7, wherein the bottom electrode is made of a metal material.

9. The capacitor structure of claim 7, wherein the top electrode is made of a metal material.

10. The capacitor structure of claim 7, wherein the pixel electrode is made of an indium tin oxide material.

11. The capacitor structure of claim 7, wherein the dielectric layer is made of a Si_3N_4 material.